ROZHDESTVENSKIY, A.P., otv.red.; VAKHRUSHEV, G.V., red.; ZHURENKO, Yu.Ye., red.; OLLI, A.I., prof., red.; SENCHENKO, G.S., red.; POROYKOV, Yu.D., red.; KOBYAKOV, I.A., tekhn.red.

[Geomorphology and recent tectonics of the Volga-Ural region and the Southern Urals] Geomorfologiia i noveishaia tektonika Volgo-Ural'skoi oblasti i IUzhnogo Urala; trudy. Ufa. Akad.nauk SSSR, Bashkirskii filial, Gorno-geol.in-t, 1960. 347 p. (MIRA 14:1)

1. Soveshchaniye po geomorfologii i neotektonike Volg-Ural'skoy oblasti i YUzhnogo Urala, Ufa, 1959. 2. Direktor Gorno-geologicheskogo instituta Bashkirskogo filiala Akademii nauk SSSR (for Olli).

(Volga Valley--Geology, Structural)
(Ural Mountain region--Geology, Structural)

ROZHDESTVENSKIY, A.P.; ZHURENKO, Yu.Ye.

Main morphostructures of the central part of the Volga Valley and Ural Mountain Region. Izv. AN SSSR. Ser. geog no.1:17-23 Ja-F '62. (MIRA 15:2)

1. Gorno-geologicheskiy institut Bashkirskogo filiala AN SSSR.

(Volga Valley--Geomorphology)
(Ural Mountain Region--Geomorphology)

GORELOV, S.K.; ROZHDESTVENSKIY, A.P.

The Second Plenum of the Interdepartmental Committee on the Coordination of the Geomorphologic and Neotectonic Study of the Urals and the Volga Valley. Izv. AN SSSR. Ser. geog. no.4: 82-83 Jl-Ag '62. (MIRA 16:5)

(Ural Mountain region--Geology, Structural)
(Volga Valley--Geology, Structural)

ROZHDESTVENSKIY, A.P.

Work of the Interdepartmental Committee on Coordinating the Research on the Geomorphology and Recent Tectonics of the Urals and the Volga Valley. Izv.AN SSSR.Ser.geog. no.3:110-112 My-Je '62. (MIRA 15:5)

(Ural Mountain region--Geological research)
(Volga Valley--Geological research)

NIKITIN, Gennadiy Mikhaylovich; KHOKHLOV, G.P., retsenzent; ROZHDESTVENSKIY, A.P., retsenzent; GRITSENKO, P.I., red.; KAN, P.M., red.

[Organizing the operation of the electric equipment of ships] Organizatsiia ekspluatatsii elektrooborudovaniia sudov. Moskva, Transport. 1965. 109 p. (MIRA 18:7)

ROZHDESTVENSKIY, A.S.

Lifting the roof of industrial buildings without dismantling the elements. Transp. stroi. 15 no.11:24-25 N '65.
(MIRA 18:11)

1. Glavnyy tekhnolog Khar'kovskogo gosudarstvennogo proyektno-izyskatel'skogo instituta.

ROZHDESTVENSKIY, A.S., inzh. (Khar'kov); GOKHMAN, M.L., inzh. (Khar'kov)

Automatic control of fueling diesel locomotives. Zhel. dor. transp. 47 no.6:65-66 Je '65. (MIRA 18:6)

RYLEYEV, G.S.; KRYUGER, P.K.; KAZAKOV, V.N.; VIL'KEVICH, B.I. Prinimal uchastiye BELEN'KIY, M.N.; FEDOTOV, I.I., kand. tekhn. nauk, retsenzent; LUGININ, N.G., kand. tekhn. nauk, retsenzent; CHEBYKIN, V.N., kand. tekhn. nauk, retsenzent [deceased]; ONISHCHENKO, I.T., kand. tekhn. nauk, retsenzent; TELICHKO, V.G., inzh., retsenzent; ISIKOV, Ye.N., inzh., retsenzent; ROZHDESTVENSKIY, A.S., inzh., retsenzent; MEDVEDEVA, M.A., tekhn. red.

[Management and operation of diesel locomotives] Teplovoznoe khoziaistvo. Izd.2., perer. i dop. [By] G.S.Ryleev i dr. Moskva, Transzheldorizdat, 1963. 290 p. (MIRA 17:3)

Technology

Works on anominal dispersion in vapors of metals, Moskva, AN SSSR, 1951.

Monthly List of Russian Accessions, Library of Congress, December 1952. UNCLASSIFIED.

ROZHDENSTVENSKI, A.V.

A short hydraulogical and hydrochemical characteristics of the Devna springs, Devna River, Provadiiska River, and the Beloslav Lake. Khidro i meteorolog no.5:42-49 '61.

ROZHDESTVENSKY, A.V.

BULGARIA/Cosmochemistry - Geochemistry. Hydrochemistry. D

Abs Jour : Ref Zhur - Khimiya, No 5, 1958, 14091

Author : Rozhdestvensky, A.V.
Inst : -
Title : Hydrochemistry of the Burgas Lakes.

Orig Pub : Priroda (B"lg.), 1957, 6, No 2, 83-87 (bolg.)

Abstract : Three lakes originating from the Black Sea estuaries are described: the Atanasov Lake, the most salty whose salinity (C) ranges from 10 to 250 ‰ at its Southern part and 1 - 80 ‰ at the Northern part; the Burgas Lake with an average C of 16‰, a high alkalinity - up to 4.5 mg/equ, pH $\approx$8.2, an oxidizability which reaches to 7.21 mg/1; the water balance of both lakes is negative; the Madren Lake with a positive balance, C 2.5 - 16.22‰, high alkalinity - 3.1 - 6.82 mg/equ, pH 8.0; The quantity of O_2 similarly to that in the Burgas Lake sharply decreases in the summer.

Card 1/1

ROZHDESTVENSKIY, A.V.

Dynamics of the principal ions present in the surface water of the Gulf of Varna. Gidrokhim.mat. 29:145-152 '59.
(MIRA 13:5)

1. Nauchno-issledovatel'skiy institut rybnogo khozyaystva, Bolgariya, g.Varna.
(Varna, Gulf of--Water--Analysis)

ROZHDESTVENSKIY, A.V.

The chemical compound of water from melted hail. Khidro i meteorolog
no.1:79-80 '60. (EEAI 10:1)
(Water) (Hail)

ROZHDESTVENSKIY, B.A., general-leytenant zapasa; RUBLEV, S.T., general-mayor v otstavke; SIMVOLOKOV, V.N., general-mayor v otstavke; ZHRAVLEV, P.M., general-mayor v otstavke; SYCHEV, K.V., general-mayor, red.; MALAKHOV, M.M., polkovnik, red.; GNEDOVETS, P.P., polkovnik zapasa, red.; ZUDINA, M.P., tekhn. red.

[Attack in a wooded-swampy and in a wooded-mountainous locality; collection of tactical examples of the attack of a rifle unit in the Great Patriotic War in 1944] Nastuplenie v lesisto-bolotistoi i gorno-lesistoi mestnosti; sbornik takticheskikh primerov nastupleniia voisk strelkovogo korpusa po opytu Velikoi Otechestvennoi voiny v 1944 g. Moskva, Voen. izd-vo M-va oborony SSSR, 1961. 203 p. ___ [Album of diagrams] Al'bom skhem. 14 diagrams. (MIRA 15:2)
(Attack and defence (Military science))

Rozhdestvenskiy, B.G.

10.

S/169/63/000/003/006/042
D263/D307

AUTHORS: Alekseyev, P.P., Besyadovskiy, Ye.A., Biryukova, L.A., Golyshev, G.I., Ivanovskiy, A.I., Izakov, M.N., Kokin, G.A., Kurilova, Yu.V., Livshits, N.S., Petrov, A.A., Rozhdestvenskiy, B.G., Solov'yev, N.V., Speranskiy, K.Ye., Khvostikov, I.A., Shvidkovskiy, Ye.G. and Shcherba, I.A.

TITLE: Study of the upper layers of the atmosphere with the aid of meteorological rockets

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 3, 1963, 28, abstract 3A166 (Tr. Vses. nauchn. Meteorol. soveshchaniya. T.I.L., Gidrometeoizdat, 1962, 91-103)

TEXT: In the present review-type article the authors give the results of studies carried out at Tsentralnaya aerologicheskaya observatoriya (Central Aerological Observatory) on atmospheric sounding with meteorological rockets. Measuring methods are described and the main points are given for obtaining such atmospheric character-

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S/169/63/000/003/006/042
D263/D307

Study of the upper layers ...

istics as pressure, temperature, and wind. Certain results are given: data of seasonal temperature variations at heights up to 50 km in the middle latitudes of the USSR and in polar regions, cases of sudden warming up, characterization of temperature distribution curves, a table characterizing the temperature inversion below the stratopause under the conditions of polar night, and data regarding the circulation in the upper atmospheric layers. Information is given on the constructed meridional sections of temperature fields and on the zonal component of the gradient wind. (25 references). /Abstracter's note: Complete translation/

Card 2/2

ROZHDESTVENSKIY, B. L.
WE

Aerial + Transmission Lines

621.396.671 **46**

E.m. **Waves in a Flat Horn.**—B. L. Rozhdestvenski. (*C. R. Acad. Sci. U.R.S.S.*, 11th March 1951, Vol. 77, No. 2, pp. 221–224. In Russian.) A mathematical discussion is presented of the excitation of a flat horn by waves, either plane or cylindrical, arriving from a waveguide coupled to the horn. A conformal transformation is used which enables the problem to be reduced to a differential equation with partial derivatives. With certain simplifying assumptions a finite solution of this equation can be obtained. The solution is sufficiently accurate for practical purposes but its accuracy can be increased by using the method of successive approximations. The method is applicable also to circular and coaxial horns.

Jan 52

KUZNETSOV, N.N.; ROZHDESTVENSKIY, B.L.

Derivation of a generalized solution to the Cauchy problem for a quasi-linear equation. Usp. mat. nauk 20 no.1:209-212 Ja-F '65. (MIRA 18:4)

L 32467-65 EWT(d) Pg-4 IJP(c)

ACCESSION NR: AR4046312 S/0044/64/000/008/B064/B065

SOURCE: Ref. zh. Matematika, Abs. 8B332

20
B

AUTHOR: Rozhdestvenskiy, B. L.

TITLE: On the Cauchy problem for systems of quasilinear equations of the hyperbolic type in the class of discontinuous functions

CITED SOURCE: Materialy k Sovmestnomu sovetsko-amerikanskomu simpoziumu po uravneniyam s chastnymi proizvodnymi. Novosibirsk, avg. 1963. Sib. otd. AN SSSR. Novosibirsk, 1963

TOPIC TAGS: Cauchy problem, partial differential equation, hyperbolic equation, uniqueness theorem, existence theorem, stability, generalized solution

TRANSLATION: The work consists of three sections. The first deals with the question of generalized (discontinuous) solutions for a

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ACCESSION NR: AR4046312

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system of quasilinear equations of the hyperbolic type

$$\frac{\partial u}{\partial t}+\frac{\partial \varphi(u,t,x)}{\partial x}=f(u,t,x);\ u(0,x)=u^0(x), \tag{1}$$

u, φ, f -- vectors with n components. The author notes the difficulty of the "method of vanishing viscosity" and formulates a concept, introduced by him, of the "stability class" of generalized solutions of the Cauchy problem (1) for the case of two quasilinear equations (n = 2). Existence and uniqueness theorems are derived for the stability of the generalized solution of problem (1) with $0 \le t \le$ $\le T(c) > 0$, if $u^0(x)$ is piecewise-continuous and satisfies the Lipschitz condition with the constant c outside the discontinuity points of the first kind. The third section contains a study of the problem

$$\frac{\partial v}{\partial t}+\operatorname{grad}\varphi(v)=0,\ v(0,x)=v_0(x),\ \operatorname{rot} v_0(x)=0, \tag{2}$$

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0

where $\vec{v} = (v_1, v_2, \ldots, v_n)$, $x = (x_1, \ldots, x_n)$. The generalized solution of the problem (2) is defined as a vector function $\vec{v}(t, x)$ for which the equality $\vec{v}\,dx - \Phi(\vec{v})\,dt = d\Phi(t, x)$ is satisfied almost everywhere, with $\Phi(t, x)$ a continuous function of t and x, and

$$\Phi(0, x) = \Phi^0(x) = \int_{x_0}^{x} v_0(x)\,dx.$$

The function $\Phi(t, x)$ is called the potential of the generalized solution of the problem (2). The stability condition is chosen in the form of the requirement that the dependence of $\Phi(t, x)$ on $\Phi^0(x)$ be continuous. The existence and uniqueness of a stable solution of problem (2) is proved under the assumption that the matrix

$$\left\| \frac{\partial^2 \Phi}{\partial v_i \partial v_k} \right\|$$

is positive definite, and the solution is presented in explicit form. I. Shishmarev.

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ACCESSION NR: AR4046312

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ENCL: 00

Card 4/4

ROZHDESTVENSKIY, B.L. (Moskva)

Construction of discontinuous solutions of systems of quasi-linear equations. Part 2. Zhur.vych.mat.i mat.fiz. 3 no.1:79-98 Ja-F '63. (MIRA 16:2)

(Differential equations)

ROZHDESTVENSKIY, B.L. (Moskva)

Construction of a generalized solution of the Cauchy problem for a system of quasi-linear equations with several variables. Zhur. vych. mat. i mat. fiz. 1 no.6:1112-1117 N-D '61. (MIRA 16:7)

ROZHDESTVENSKIY, B.L. (Moskva)

Construction of discontinuous solutions to systems of quasi-linear equations. Part 1. Zhur.vych.mat.i mat.fiz. 2 no.6:1019-1043 N-D '62. (MIRA 15:11)

(Differential equations)

S/208/63/003/001/003/013
B112/B102

16.6500

AUTHOR: Rozhdestvenskiy, B. L. (Moscow)

TITLE: Construction of discontinuous solutions to systems of quasilinear equations. II

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 3, no. 1, 1963, 79-98

B

TEXT: This paper is a continuation of a previous paper (Zh. vychisl. matem. i matem. fiz., 1962, 2, No. 6, 1019-1043), in which the Cauchy problem

$$\partial u_i/\partial t + \partial\varphi_i(u,t,x)/\partial x = \overline{f}_i(u,t,x) \quad (i = 1,2);$$

$$u(0,x) = u^0(x); \quad r(0,x) = r^0(x); \quad |x| \leqslant a$$

(r is Riemann's invariant) was solved by the method of consecutive approximations. In the present paper, the convergence of this method is demonstrated and certain examples are considered. Finally, the method is applied in extended form to the system of the three hydrodynamical equations

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Construction of discontinuous ... S/208/63/003/001/003/013
B112/B102

$\partial\eta/\partial t - \partial v/\partial x = 0$, $\partial v/\partial t + \partial p/\partial x = 0$, $\partial(\varepsilon + v^2/2)/\partial t + \partial(pv)/\partial x = 0$, a known relation $F(\varepsilon, p, \eta) = 0$ being supposed. There are 9 figures.

SUBMITTED: May 21, 1962

Card 2/2

S/208/62/002/006/004/007
B112/B186

AUTHOR: Rozhdestvenskiy, B. L. (Moscow)

TITLE: Construction of discontinuous solutions to systems of quasilinear equations. I

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 2, no. 6, 1962, 1019-1043

TEXT: The hyperbolic quasilinear system

$$\frac{\partial u_i}{\partial t} + \frac{\partial}{\partial x}\varphi_i(u, t, x) = f_i(u, t, x) \quad (i = 1,2); \qquad u = \{u_1, u_2\} \qquad (1)$$

with the initial conditions

$$u(0,x) = u^0(x)$$

is solved by a piecewise-continuous function $u(t,x)$ which is "almost-classical" on a piecewise smooth discontinuity curve $x = x(t)$ and which satisfies the conditions

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Construction of discontinuous ...

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B112/B186

$$D\left[u_i(t,x(t))\right] = \left[\varphi_i(u(t,x,(t)),t,x(t)\right],$$

$$D = x'(t) \quad (i = 1,2), \tag{4}$$

where

$$\left[f(t,x)\right] = f(t,x+0) - f(t,x-0).$$

The method of characteristic curves is applied in order to construct a multivalued surface $u = \ddot{u}(t,x)$ from which the generalized solution is obtained by a method of consecutive approximations. There are 6 figures.

SUBMITTED: May 21, 1962

Card 2/2

ROZHDESTVENSKIY, B.L.

Construction of discontinuous solutions to a system of two quasi-linear equations. Dokl.AN SSSR 144 no.1:58-61 My '62. (MIRA 15:5)

1. Predstavleno akademikom S.L.Sobolevym.
(Differential equations, Linear)

32385

S/044/62/000/006/029/127
B158/B112

24.4300
16.3500

AUTHORS: Kuznetsov, N. N., Rozhdestvenskiy, B. L.

TITLE: Solution of the Cauchy problem for one system of quasi-linear equations with several independent variables

PERIODICAL: Referativnyy zhurnal. Matematika, no. 6, 1962, 72-73, abstract 6B300 (Zh. vychisl. matem. i matem. fiz., v. 1, no. 2, 1961, 217 - 223)

TEXT: The Cauchy problem in a semi-space $t \geqslant 0$ is considered for a system

$$\frac{\partial v}{\partial t} + (v\nabla)v = \nu\Delta v \quad (\nu > 0) \qquad (1)$$

with the initial condition

$$v(0, x, y) = v_0(x, y). \qquad (2)$$

Here $v = (v_x, v_y)$, $\nabla = (\partial/\partial x, \partial/\partial y)$, $v_0 = (v_{0x}, v_{0y}) \in C^2$, $\partial v_{0x}/\partial y = \partial v_{0y}/\partial x$, $|v_0(x, y)| = o(\sqrt{x^2 + y^2})$ for $x^2 + y^2 \to \infty$. Assuming that $\partial v_x(t, x, y)/\partial y = \partial v_y(t, x, y)/\partial x$ for any t, x, y, the authors obtain ex-

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Solution of the Cauchy problem ... S/044/62/000/006/029/127
B158/B112

plicit formulas for the solution of problem (1), (2) using the method of E. Hopf (Communs Pure and Appl. Math., 1950, 3, no. 3, 201 - 230). From a consideration of the formulas obtained it can be established that when $\nu \to 0$ the solution of problem (1), (2) tends to a limit which can essentially be regarded as a generalized solution of the Cauchy problem for the system

$$\frac{\partial \omega}{\partial t} + (\omega \nabla)\omega = 0 \qquad (3)$$

with the initial condition (2). A study is made of the structure of the boundary function which has, generally speaking, both lines and surfaces of discontinuity . Another procedure is also suggested for the setup of a generalized solution of problem (3), (2), connected with the concept of the potential (RZhMat., 1960, 3054). [Abstracter's note: Complete translation]

Card 2/2

ROZHDESTVENSKIY, B.L.

System of quasi-linear equations in the theory of surfaces.
Dokl. AN SSSR 143 no.1:50-52 Mr '62. (MIRA 15:2)

1. Predstavleno akademikom I.G.Petrovskim.
(Differential equations, Linear)
(Surfaces)

KUZNETSOV, N.N. (Moskva); ROZHDESTVENSKIY, B.L. (Moskva)

Solution of the Cauchy problem for one system of quasi-linear equations with several independent variables. Zhur. vych. mat. i mat. fiz. 1 no.2:217-223 Mr-Ap '61. (MIRA 14:8)
(Differential equations, Partial)

ROZHDESTVENSKIY, B.L.

A new method of solving Cauchy's problem in the large for quasilinear equations. Dokl.AN SSSR 138 no.2:309-312 My '61. (MIRA 14:5)

1. Predstavleno akademikom M.V.Keldyshem.
(Differential equations, Linear)

S/020/62/144/001/007/024
B112/B102

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AUTHOR: Rozhdestvenskiy, B. L.

TITLE: Construction of discontinuous solutions of a system of two quasi-linear equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 1, 1962, 58-61

TEXT: The Cauchy problem $r(0,x) = r^0(x)$, $|x| \leq a$ for the system $\partial r_k/\partial t + \xi_k(r)\partial r_k/\partial x = 0$ $(k = 1,2)$ is approximately solved by a sequence $\overset{(n)}{r}(t,x)$, where $\overset{(n)}{r}(0,x) = r^0(x)$ and where $\overset{(n+1)}{r}(t,x)$ is a solution of the Cauchy problems (12)

$$\frac{\partial \overset{(n+1)}{r_1}}{\partial t} + \xi_1(\overset{(n+1)}{r_1}, \overset{(n)}{r_2}(t,x))\frac{\partial \overset{(n+1)}{r_1}}{\partial x} = 0; \quad \overset{(n+1)}{r_1}(0,x) = r_1^0(x);$$
$$\frac{\partial \overset{(n+1)}{r_2}}{\partial t} + \xi_2(\overset{(n)}{r_1}(t,x), \overset{(n+1)}{r_2})\frac{\partial \overset{(n+1)}{r_2}}{\partial x} = 0; \quad \overset{(n+1)}{r_2}(0,x) = r_2^0(x). \qquad (13)$$

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Card 2/2

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16(1)

AUTHORS: Kuznetsov,N.N. and Rozhdestvenskiy,B.L. SOV/42-14-2-8/19

TITLE: Construction of a Generalized Solution of the Cauchy Problem for a Quasilinear Equation

PERIODICAL: Uspekhi matematicheskikh nauk,1959,Vol 14,Nr 2,pp 211-216(USSR)

ABSTRACT: The present paper contains no essentially new results. The authors propose a somewhat simpler and more general method for the construction of the generalized solution of the equation

$$\frac{\partial u}{\partial t} + \frac{\partial \varphi(u,t,x)}{\partial x} = 0$$

treated already several times by Oleynik.
There are 2 figures, and 5 references, 4 of which are Soviet, and 1 German.

SUBMITTED: December 4, 1958

Card 1/1

16(1)

SOV/42-14-2-9/19

AUTHOR: Rozhdestvenskiy, B.L.

TITLE: On the Conservativeness of Systems of Quasilinear Equations

PERIODICAL: Uspekhi matematicheskikh nauk, 1959, Vol 14, Nr 2, pp 217-218 (USSR)

ABSTRACT: The author joins his earlier publication [Ref 5] and shows that the system

$$(1) \qquad \frac{\partial u_1}{\partial t} + u_2\frac{\partial u_1}{\partial x} = 0\,, \quad \frac{\partial u_2}{\partial t} + u_3\frac{\partial u_2}{\partial x} = 0\,, \quad \frac{\partial u_3}{\partial t} + u_1\frac{\partial u_3}{\partial x} = 0$$

cannot be represented in the form

$$\frac{\partial \varphi_i(u,t,x)}{\partial t} + \frac{\partial \psi(u,t,x)}{\partial x} = f_i(u,t,x)$$

with once differentiable φ and ψ so that for (1) the usual definition of a generalized solution is not possible. There are 5 references, 3 of which are Soviet, and 2 American.

SUBMITTED: March 22, 1958

Card 1/1

16(1)

AUTHORS: Kuznetsov, N.N., and Rozhdestvenskiy, B.L. SOV/20-126-3-7/69

TITLE: The Existence and Uniqueness of the Generalized Solution to Cauchy Problem for the Inhomogeneous Conservation Law

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 486-489 (USSR)

ABSTRACT: For the equation

$$\frac{\partial u}{\partial t} + \frac{\partial \varphi(u,t,x)}{\partial x} = \psi(u,t,x) \tag{1}$$

the authors consider the Cauchy problem with the piecewise continuous and bounded initial function $u_0(x)$. Let $u(t,x)$ be a generalized piecewise smooth solution and $F(t,x)=\int_0^x \psi(u(t,\xi),t,\xi)d\xi$.

Then (1) can be represented in the form

$$\frac{\partial u}{\partial t} + \frac{\partial}{\partial x}\Big[\psi(u,t,x) - F(t,x)\Big] = 0 .$$

The continuous function

Card 1/3

$$\phi(t,x) = \int_{(0,0)}^{(t,x)} u(t,x)dx - \left[\varphi(u,t,x) - F(t,x)\right] dt$$

is denoted to be the potential of the generalized solution. The potential satisfies the equation

$$(2) \qquad \frac{\partial\phi}{\partial t} + \varphi\left(\frac{\partial\phi}{\partial x}, t, x\right) = \int_0^x \psi\left(\frac{\partial\phi(t,\xi)}{\partial\xi}, t, \xi\right) d\xi$$

and the initial condition

$$(3) \qquad \phi(0,x) = \phi_0(x) = \int_0^x u_0(\xi)\, d\xi .$$

It is asserted that the initial problem for (1) is equivalent with (2) - (3). The existence and uniqueness of the solution of

The Existence and Uniqueness of the Generalized Solution to Cauchy Problem for the Inhomogeneous Conservation Law SOV/20-126-3-7/69

the Cauchy problem is proved for (1) by proving the existence of a unique solution of (2) - (3) by successive approximation. The present paper generalizes the previous papers of the authors /Ref 1,2/.
There are 4 Soviet references.

PRESENTED: February 13, 1959, by M.V.Keldysh, Academician

SUBMITTED: February 7, 1959

88194

S/042/60/015/006/001/004
C111/C222

16.3500

AUTHOR: Rozhdestvenskiy, B.L.

TITLE: Discontinuous Solutions of Systems of Quasilinear Hyperbolic Equations

PERIODICAL: Uspekhi matematicheskikh nauk, 1960, Vol.15, No.6, pp.59-117

TEXT: § 1. A system of quasilinear equations; § 2. Some properties of the solutions of quasilinear equations; § 3. The notion of generalized solutions of a system of quasilinear equations; § 4. Stability conditions of the generalized solution of a system of quasilinear equations; § 5. Generalized solutions of the Cauchy problem for systems of quasilinear equations and irreversibility of the process described by these equations; § 6. On the conservativity of systems of quasilinear equations; § 7. Example of a non-conservative system of quasilinear equations; § 8. On the discontinuity of the solutions of a conservative system of quasilinear equations; § 9. Notion of the potential of the generalized solution of a system of quasilinear equations; § 10. On the uniqueness of the solution of the Cauchy problem for a quasilinear equation; § 11. The construction of the generalized solution of the Cauchy problem for a quasilinear equation with the aid of the potential method; § 12. On the uniqueness of

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88194

S/042/60/015/006/001/004
C111/C222

Discontinuous Solutions of Systems of Quasilinear Hyperbolic Equations

the generalized solution of the Cauchy problem for systems of quasilinear equations; § 13. Uniqueness theorem for the generalized solution of the Cauchy problem for a system of quasilinear equations in the class of piecewise smooth solutions; § 14. Some remarks with respect to systems of linear equations of hyperbolic type; § 15. Self-simulating solutions of a system of quasilinear equations; § 16. On the uniqueness of the generalized solution of the problem on the decay of an arbitrary discontinuity; § 17. Asymptotic behavior of the solutions of quasilinear equations for $t \to \infty$; § 18. On the method of the "tenacity" for quasilinear equations; § 19. System of equations of gas dynamics; § 20. Comparison of the properties of linear and quasilinear equations.

The author considers quasilinear hyperbolic systems

$$(1.1) \qquad \frac{\partial u_i}{\partial t} + \sum_{j=1}^{n} a_{ij} \frac{\partial u_j}{\partial x} = b_i \quad (i=1,\ldots,n),$$

where the a_{ij}, b_i depend on $u = \{u_1,\ldots,u_n\}$, x and t. It is stated that the solutions are discontinuous also for smooth initial values and therefore the generalized solution is defined beside of the classical

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S/042/60/015/006/001/004
C111/C222

Discontinuous Solutions of Systems of Quasilinear Hyperbolic Equations

solution. The author gives conditions of stability which guarantee the uniqueness of the generalized solution. It is proved that, in contrary to the linear case, a discontinuous generalized solution of a system of quasilinear hyperbolic equations in general describes an irreversible physical process. In agreement with earlier papers of the author it is proved that (1) is conservative for $n \leq 2$ and in general not conservative for $n \geq 3$, where completely non-conservative and conservatively closed systems are distinguished beside of conservative systems. Properties of discontinuity are investigated, where the potential method (cf.(Ref.17)) is used especially. The results of the paper are known except of §§ 15 and 16 and are mostly given without proofs. A great part of the results is contained in earlier papers of the author. In § 15 the author considers the system

$$\frac{\partial u_i}{\partial t} + \frac{\partial \varphi_i(u)}{\partial x} = 0. \qquad (15.1)$$

For (15.1) the Cauchy problem

$$u_i(0,x) = \begin{cases} u_i^- & \text{for } x < 0 \\ u_i^+ & \text{for } x > 0 \end{cases} \quad (i=1,2,\ldots n) \qquad (15.3)$$

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is given, where u_i^+ and u_i^- are constants (problem of the decay of a discontinuity). It is shown that under certain assumptions on the functions φ_i every generalized solution of (15.1), (15.3) which satisfies certain conditions of stability is self-simulating, i.e. it depends only on the variable $y = \frac{x}{t}$. Then the uniqueness of this solution is proved.

The author mentions O.A.Oleynik, I.M.Gel'fand, A.N.Tikhonov and V.Ya. Arsenin. He thanks N.N.Kuznetsov for aid in writing § 17. There are 46 references: 29 Soviet, 12 American, 1 Swiss, 2 German 1 French and 1 Italian.

SUBMITTED: November 4, 1959

Card 4/4

16(1)

AUTHOR: Rozhdestvenskiy, B.L. (Moscow) SOV/39-47-4-3/4

TITLE: On the Discontinuity of the Solutions of Quasi-Linear Equations (O razryvnosti resheniy kvazilineynykh uravneniy)

PERIODICAL: Matematicheskiy sbornik, 1959, Vol 47, Nr 4, pp 485-494 (USSR)

ABSTRACT: Let

$$(1)\qquad \frac{\partial u_i}{\partial t} + \sum_{j=1}^{2} a_{ij} \frac{\partial u_j}{\partial x} = b_i$$

be hyperbolic and the coefficients be continuous, two times continuously differentiable functions. The solution of (1) generally can proceed discontinuously also for continuous initial conditions. In the present paper the author gives a general method which renders possible to give conditions under which for continuous initial conditions also the solution of (1) will be continuous. The notion of a weakly non-linear system is introduced, and it is proved that for weakly non-linear systems the continuity of the solution follows from the continuity of the initial values along a

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On the Discontinuity of the Solutions of Quasi-Linear Equations SOV/39-47-4-3/4

smooth initial curve. The inversion of the theorem is valid too, i.e. weak nonlinearity is necessary and sufficient for the continuity. The author thanks A.N. Tikhonov for discussions and valuable remarks.
There are 3 references, 2 of which are Soviet, and 1 is American.

SUBMITTED: July 23, 1957

Card 2/2

ROZHDESTVENSKIY, B.L.

Uniqueness of the generalized solution of Cauchy's problem for systems of quasilinear hyperbolic equations. Dokl.AN SSSR 122 no.5: 762-765 O '58. (MIRA 11:11)

1. Predstavleno akademikom M.V. Keldyshem.
(Differential equations, Partial)

SOV/20-122-4-3/57

AUTHOR: Rozhdestvenskiy, B.L.

TITLE: On Cauchy's Problem for Quasi-Linear Equations (O zadache Koshi dlya kvazilineynykh uravneniy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 4, pp 551-554 (USSR)

ABSTRACT: Let the functions $\varphi_i(u,t,x)$ be bounded, continuous and continuously differentiable. Let $u(t,x) = \{u_1(t,x),\dots,u_n(t,x)\}$ be a generalized solution of the quasi-linear system

$$(1) \quad \frac{\partial u_i}{\partial t} + \frac{\partial \varphi_i(u_1,u_2,\dots,u_n,t,x)}{\partial x} = 0 \qquad i = 1,2,\dots n$$

which is piecewise continuous for $t > 0$ (see [Ref 1]). Let

$$\Phi_i(t,x) = \int_{(0,0)}^{(t,x)} u_i(t,x)dx - \varphi_i(u(t,x),t,x)dt.$$

The $\Phi_i(t,x)$ are continuous in t,x (because of the definition of the generalized solution). In the points of the semiplane $t \geqslant 0$, in which $u_i(t,x)$ are continuous, it holds:

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$$\frac{\partial \phi_i(t,x)}{\partial x} = u_i(t,x) ; \quad \frac{\partial \phi_i(t,x)}{\partial t} = - \varphi_i(u,t,x)$$

. If here the variables $u_i(t,x)$ are eliminated, then for $\phi_i(t,x)$ a non-linear system

$$(2) \quad \frac{\partial \phi_i}{\partial t} + \varphi_i\left(\frac{\partial \phi}{\partial x}, t, x\right) = 0$$

is obtained, where

$$\phi = \left\{\phi_1, \ldots, \phi_n\right\}, \quad \frac{\partial \phi}{\partial x} = \left\{\frac{\partial \phi_1}{\partial x}, \ldots, \frac{\partial \phi_n}{\partial x}\right\}$$

If there exists a generalized solution of Cauchy's problem for (1) which is piecewise continuous for $t > 0$, then it exists a continuous solution of the system (2), and conversely. This reduction of the Cauchy problem for (1) considered in the class of the generalized solutions [Ref 1] to the Cauchy problem for (2) allows to investigate the uniqueness of the generalized solution of (1). As an example the author proves the theorem:

On Cauchy's Problem for Quasi-Linear Equations SOV/20-122-4-3/57

Let $\varphi''_{uu}(u,t,x)$ be continuous and bounded, let $\varphi''_{uu}(\bar{u},t,x) \cdot \varphi''_{uu}(\bar{\bar{u}},t,x) \geqslant 0$ for arbitrary values $\bar{u}$ and $\bar{\bar{u}}$ in the considered domain. The generalized solution, piecewise continuous for $t > 0$, of the Cauchy problem for

$$\frac{\partial u}{\partial t} + \frac{\partial \varphi(u,t,x)}{\partial x} = 0$$ is unique, if

$$\varphi'_u(u(t,x+0),t,x) \leqslant \varphi'_u(u(t,x-0),t,x)$$

holds for all points (t,x) of the domain.
There are 6 references, 5 of which are Soviet, and 1 is English.

PRESENTED: May 28, 1958, by M.V. Keldysh, Academician

SUBMITTED: May 27, 1958

Card 3/3

SOV/20-122-5-4/56

AUTHOR: Rozhdestvenskiy, B.L.

TITLE: On the Uniqueness of the Generalized Solution of the Cauchy Problem for a System of Quasilinear Equations of Hyperbolic Type (O yedinstvennosti obobshchennogo resheniya zadachi Koshi dlya sistem kvazilineynykh uravneniy giperbolicheskogo tipa)

PERIODICAL: Doklady Akademii nauk, SSSR, 1958, Vol 122, Nr 5, pp 762-765 (USSR)

ABSTRACT: The functions $u_i(t,x)$ which assume given values for $t = 0$ and which satisfy the conditions $\oint\limits_C u_i(t,x)dx - \varphi_i(u(t,x),t,x)dt = 0$, where C is an arbitrary piecewise smooth closed curve of the upper half plane $t \geqslant 0$, are called the generalized solution of the Cauchy problem for the system

$$(1) \qquad \frac{\partial u_i}{\partial t} + \frac{\partial \varphi_i(u,t,x)}{\partial x} = 0, \qquad i=1,2, \qquad u=\{u_1,u_2\}.$$

Under numerous assumptions on the functions φ_i and the eigenvectors of (1) the author proves the uniqueness of the generalized solution if this solution satisfies certain conditions at the points of discontinuity.

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On the Uniqueness of the Generalized Solution of the Cauchy Problem for a System of Quasilinear Equations of Hyperbolic Type SOV/20-122-5-4/56

There are 8 references, 6 of which are Soviet, 1 English, and 1 French.

PRESENTED: May 30, 1958, by M.V.Keldysh, Academician

SUBMITTED: May 27, 1958

Card 2/2

[illegible], B.L.

(3

24(0) PHASE I BOOK EXPLOITATION SOV/3104

Moscow. Inzhenerno-fizicheskiy institut. Kafedra matematiki

Sbornik nauchnykh rabot (Collection of Scientific Works) [Moscow?] Atomizdat, 1958. 194 p. 1,000 copies printed.

Tech. Ed. R.A. Negrimovskaya.

PURPOSE: This book is intended for applied mathematicians and theoretical physicists.

COVERAGE: This book contains a collection of articles by leading Soviet mathematicians and physicists on topics in atomic physics. The Thomas-Fermi generalized model of the atom, distributions, compression of an isothermic gas, boundary value problems, etc. are discussed. The book was published under the auspices of the Department of Mathematics of the Moscow Engineering-Physics Institute. No personalities are mentioned. References accompany individual articles.

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Collection of Scientific Works SOV/3104

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Arsenin, V.Ya., and N.N. Yenenko On the Extension of Discontinuites in Ideal Gases 20

Vasil'kov, D.A. On the Flow of a Gas in a Porous Medium Formed of Spherical Granules 80

Zhidkov, Ye. P. The First Boundary Value Problem for a Parabolic Equation with Small Parameter and Higher Derivative 85

Zhidkov, Ye.P. The Second Boundary Value Problem for an Equation of Parabolic Type With Small Parameter and Higher Derivative 100

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Yanenko, N.N. Asymptotic and Approximation Formulas for the Pressure and Internal Energy of Matter in the Thomas-Fermi Generalized Model of the Atom	144

AVAILABLE: (Library of Congress (QA3.M72)

Card 3/3

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ROZHDESTVENSKIY, B. L.

20-3-8/59

AUTHOR: Rozhdestvenskiy, B.L.

TITLE: On Systems of Quasilinear Equations. (O sistemakh kvazilineynykh uravneniy)

PERIODICAL: Doklady Akad.Nauk SSSR, 1957, Vol. 115, Nr 3, pp.454-457 (USSR)

ABSTRACT: The author investigates here whether any system of quasilinear equations (1) $\frac{\partial u_i}{\partial t} + \sum_{j=1}^{n} a_{ij} \frac{\partial u_j}{\partial x} = b_i$ (i = 1,2,..) can be represented in the form of conservation theorems $\frac{\partial \varphi_i(u_j,t,x)}{\partial t} + \frac{\partial \psi_i(u_j,t,x)}{\partial x} = f_i(u_j,t,x)$ (i = 1,2,...,n). In this connection the coefficients a_{ij}, b_i are analytical functions of the variables u_j,t,x. All possible conservation theorems are determined for the case of equations of hydrodynamics. On that occasion the number of conservation principles proves to be larger than the number of unknown functions. In connection with that some generalized solutions of the Cauchy (Koshi) problem for the equations of hydrodynamics can be shown. In the considered variation domain of the variables u_j,t,x the initially given system be hyperbolic. First the conceptions "generalized solution of the Cauchy problem", "principle of the conservation of the system of equations (1)", "conservative", "non-conservative", "conservatively closed", "totally non-conservative", "independent" are defined. The following statements are valid: 1) When $n \leqslant 2$ the system (1) is everywhere conservative. (2) When

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$n > 3$ the system (1) is as a rule totally non-conservative. The conservativity of the system of quasilinear equations (1) is conserved in the case of all non-degenerate transformations of the dependent variables of k independent variables. Thus the conservativity is a fundamental property of the systems of quasilinear equations and the conservativity is invariant with regard to any transformations of the variables. The existence of non-conservative systems is an essential property of the systems of quasilinear equations. Of the systems of quasilinear equations the equations of hydrodynamics are especially important. The author obtains here a class of conservation principles for the equations of the hydrodynamics of a unidimensional flow of a compressible liquid. The present paper shall determine the general solution of the system $\frac{\partial \Psi}{\partial \varrho} = v\frac{\partial \varphi}{\partial \varrho} + \frac{p'_{\varrho}}{\varrho}\frac{\partial \varphi}{\partial v}$; $\frac{\partial \Psi}{\partial v} = \varrho\frac{\partial \varphi}{\partial \varrho} + v\frac{\partial \varphi}{\partial v} + \frac{p}{\varrho}\frac{\partial \varphi}{\partial \varepsilon}$; $\frac{\partial \Psi}{\partial \varepsilon} = \frac{p_{\varepsilon}'}{\varrho}\frac{\partial \varphi}{\partial v} + v\frac{\partial \varphi}{\partial \varepsilon}$. The here obtained general solution of this system of equations expresses the conservation principles of the mass, the impulse, the energy and the entropy of the gas. Under the same initial conditions various generalized solutions of the equations of hydrodynamics can be determined. There are 3 Slavic references.

Card 2/3

On Systems of Quasilinear Equations. 20-3-8/59

ASSOCIATION: Department for Applied Mathematics of the Mathematical Institute AN USSR imeni V.A.Steklov (Otdeleniye prikladnoy matematiki Matematicheskogo instituta imeni V.A.Steklova Akademii nauk SSSR)

PRESENTED: Keldysh, M.V., Academician, February 28, 1957

SUBMITTED: February 26, 1957

AVAILABLE: Library of Congress.

Card 3/3

ROZHDESTVENSKIY, B. L.

USSR/Physics - Waveguides 21 Jul 51

"Problem of Eliminating the Reflections in Waveguides of Variable Cross Section," B. L. Rozhdestvenskiy, D. N. Chetayev

"Dok Ak Nauk SSSR" Vol LXXIX, No 3, pp 427-430

Considers a rectangular waveguide with variable cross section and proposes a constructive (design) method for eliminating reflections caused by the inhomogeneities of its form. Shows that if a waveguide is filled with an inhomogeneous medium whose

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characteristics are connected in a definite manner with the inhomogeneity of its form, then reflections of waves of the type H_{n0} can be completely eliminated. Submitted by Acad B. A. Vvedenskiy 16 May 51.

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C111/C222

AUTHOR: Rozhdestvenskiy, B.L.

TITLE: A new method of solving the Cauchy problem in the large for quasilinear equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no.2, 1961, 309-312

TEXT: The author proposes a new method for the construction of the discontinuous solutions of the Cauchy problem for a system of quasilinear equations of hyperbolic type.

Let $\phi(t,x) = \{\phi_1(t,x),\dots,\phi_n(t,x)\}$ be defined and continuous for $0 \le t \le T$, $x_1(t) \le x \le x_2(t)$, and let it have there almost everywhere bounded first derivatives which satisfy

$$\frac{\partial \varphi_i(t,x)}{\partial t} + \varphi_i\left(\frac{\partial \phi(t,x)}{\partial x}, t, x\right) = \int_a^x f_i\left(\frac{\partial \phi(t,\xi)}{\partial \xi}, t, \xi\right) d\xi \qquad (i = 1,\dots n) \qquad (2)$$

and

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$$\phi_i(0, x) = \phi_i^o(x) = \int_a^x u_i^o(\xi)d\xi \quad (i=1,\ldots n) \qquad (3)$$

The function $u(t,x) = \partial\phi(t,x)/\partial x$ is called the generalized solution of the Cauchy problem

$$\frac{du_i}{\partial t} + \frac{\partial\varphi_i(u,t,x)}{\partial x} = f_i(u,t,x)$$
$$u_i(0,x) = u_i^o(x) \quad (i = 1,\ldots,n) . \qquad (1)$$

The set $\mathcal{E}$ of generalized solutions $u(x,t)$ forms a stable class of solutions of (1) if

a) for every bounded measurable $u^o(x)$ there exists a $u(t,x) \in \mathcal{E}$ so that

$$\int_a^x \left[u_i(0,\xi) - u_i^o(\xi)\right] d\xi \equiv 0 \quad (i=1,\ldots,n).$$

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b) for arbitrary $u(t,x) \in \mathcal{E}$, $\varepsilon > 0$ and $0 \le \tau < t$ there exists a $\delta > 0$ so that

$$\left| \int_a^x \left[u_i(t,\xi) - \bar{u}_i(t,\xi) \right] d\xi \right| \le \varepsilon \qquad (i=1,\ldots,n) \qquad (4)$$

holds for all $\bar{u}(t,x) \in \mathcal{E}$ which satisfy

$$\left| \int_a^z \left[u_i(\tau,\xi) - \bar{u}_i(\tau,\xi) \right] d\xi \right| \le \delta \qquad (i=1,..,n) \qquad (5)$$

$$x_1(\tau) \le z \le x_2(\tau) \ ;$$

c) every smooth (classical) solution of (1) belongs to $\mathcal{E}$.
The generalized solution $u(t,x)$ of (1) is called stable if there exists a class $\mathcal{E}$ which contains it.

Let $u^0(x)$ have an isolated singularity for $x = 0$. The author considers the solution of (1) for $|x| \le b$, where b is sufficiently small.

The function $u^0(x)$ is smoothed on $|x| \le \varepsilon$ so that the smoothed function
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$\tilde{u}^{o}_{\varepsilon}(x)$ has no singularities for $|x| \leq b$ and coincides with $u^{o}(x)$ outside $|x| \leq \varepsilon$, where

$$\int_{-\varepsilon}^{\varepsilon} \left[\tilde{u}^{o}_{i\varepsilon}(\xi) - u^{o}_{i}(\xi)\right] d\xi = 0 \quad (i = 1,\ldots,n) \qquad (6)$$

is satisfied or

$$\tilde{\phi}^{o}_{\varepsilon}(x) \equiv \phi^{o}(x) \quad \text{for} \quad |x| \geqslant \varepsilon \,. \qquad (7)$$

For the system of (1) the author now considers

$$\tilde{u}_{\varepsilon}(0, x) = \tilde{u}^{\varepsilon}_{o}(x) \qquad (9)$$

Either the solution is defined for $0 \leq t \leq T$ or there again appear singularities for $t = t_1(\varepsilon) < T$. Then on an interval of the length 2ε, $\tilde{u}_{\varepsilon}(t_1(\varepsilon), x)$ is smoothed with the aid of a function $\tilde{u}'_{\varepsilon}(x)$, and the Cauchy problem for (1) with $\tilde{u}_{\varepsilon}(t_1(\varepsilon), x) = \tilde{u}'_{\varepsilon}(x)$ is considered etc. By continuing the method one reaches that $\tilde{u}_{\varepsilon}(t,x)$ and $\tilde{\phi}_{\varepsilon}(t,x)$ are defined on $0 \leq t \leq T$. If there exists $\lim\limits_{\varepsilon \to o} \tilde{\phi}_{\varepsilon}(t,x) = \phi(t,x)$

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then $u(t,x) = \partial\phi(t,x)/\partial x$ is the stable generalized solution of (1).
The author considers

$$\frac{\partial u}{\partial t} + \frac{\partial \varphi(u,t,x)}{\partial x} = f(u,t,x), \quad u(0,x) = u_0(x), \qquad (10)$$

where $\varphi(u,t,x)$, $f(u,t,x)$ are two times continuously differentiable, $|u_0(x)| < M$ $(x_1 \leq x \leq x_2)$.

Theorem: There exists a unique stable class of solutions $\mathcal{E}$ of the considered Cauchy problem. Each of these solutions can be obtained with the aid of the "potential smoothing" of the singularities, i.e. for every solution its potential reads $\phi(t,x) = \lim_{\varepsilon \to 0} \phi_{\varepsilon}(t,x)$.

As an example the author considers the case $f(u,t,x) \equiv 0$, $u_0(x)$ - piecewise continuous with an isolated singularity in $x = 0$.
The author thanks A.N. Tikhonov, Corresponding Member of the Academy of Sciences USSR. There is 1 figure and 2 Soviet-bloc references.

PRESENTED: December 10, 1960, by M.V. Keldysh, Academician

SUBMITTED: December 9, 1960

Card 5/5

Rozhdestvenskiy, B.P

MERLIN, V.S.; MARTYNOV, D.Ya., otvetstvennyy redaktor; MARKOV, M.V., professor, redaktor; SHAFUGULLIN, A.G., professor, redaktor; ARBUZOV, B.A., professor, redaktor; DYUKOV, I.A., professor, redaktor; NORDEN, A.G., professor, redaktor; PISAREV, V.I., professor, redaktor; TIKHVINSKAYA, Ye. I., professor, redaktor; ABDRAKHAMANOV, M.I., dotsent, redaktor; MOROZOV, D.G., dotsent, redaktor; KHARITONOV, A.P., dotsent, redaktor; KOLOBOV, N.V., redaktor; KOLESNIKOVA, Ye.A., starshiy prepodavatel', redaktor; ROZHDESTVENSKIY, B.P., dotsent, redaktor.

[Peculiarity of conditioned reactions in the structure of a voluntary act] Svoeobrazie uslovnykh reaktsii v strukture volevogo akta. Kazan', 1953. 123 p. (Kazan. Universitet. Uchenye zapiski, vol.113, no.3)
(MIRA 10:3)

1. Rektor universiteta (for Martynov);2.Prorektor po nauchnoy rabote (for Markov).3.Prorektor po uchebnoy rabote (for Shafugullin).
4.Sekretar' partbyuro universiteta (for Kolobov)
(CONDITIONED RESPONSE) (WILL)

ROZHDESTVENSKIY, B.V., glavnyy mekhanik.

Safety devices for circular saws. Der.i lesokhim.prom. 2 no.11:30 N '53.
(MLRA 6:11)

1. Kombinat proizvodstvennykh predpriyatiy tresta Kazmed'stroy.
(Saws--Safety appliances)

STREL'TSOV, N.S.; FEDOTOV, G.M.; ROZHDESTVENSKIY, B.V.; GUSTOV, G.K.;
GAMULINA, V.Ye.; NIFONTOV, Yu.L.; INDYUKOV, N.N.; BEZGACHEV,
Ye.A.; KURYSHEV, V.S.

Design of the electromagnet of the 7 bev. proton synchrotron.
Prib. i tekh. eksp. 7 no.4:15-19 Jl-Ag '62.
(MIRA 16:4)

1. Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR i Institut teoreticheskoy i eksperimental'noy fiziki Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.
(Electromagnets) (Synchrotron)

ROZHDESTVENSKIY, B.S.

Investigating hydraulic impact applicable to aircraft hydraulic systems. Izv. vys. ucheb. zav.; av. tekh. 8 no.2:138-146 '65. (MIRA 18:5)

ROZHDESTVENSKIY, B. V

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L 13221-65 EWT(l)/EWG(k)/EWT(m)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2
Pz-6/Po-4/Pab-10/Pi-4 IJP(c)/SSD(b)/ASD(p)-3/BSD/AEDC(b)/RAEM(a)/ESD(gs)/ESD(t)
DM/AT

ACCESSION NR: AP4047415 S/0089/64/017/004/0287/0294

B

AUTHORS: Gashev, M. A.; Gustov, G. K.; D'yachenko, K. K.; Komar, Ye. G.; Maly*shev, I. F.; Monoszon, N. A.; Popkovich, A. V.; Saksa-Ratnikov, B. K.; Rozhdestvenskiy, B. V.; Rumyantsev, N. N.; Saksaganskiy, G. L.; Spevakova, F. M.; Stolov, A. M.; Strel'tsov, N. S.; Yavno, A. Kh.

19

TITLE: Main technical characteristics of the "Tokamak-3" experimental thermonuclear installation

SOURCE: Atomnaya energiya, v. 17, no. 4, 1964, 287-294

TOPIC TAGS: thermonuclear pinch, thermonuclear fusion, plasma research, plasma pinch / Tokomak-3

ABSTRACT: The "Tokamak-3" is intended for the investigation of a toroidal quasi-stationary discharge in the strong longitudinal magnetic field. The toroidal discharge is produced in the vacuum cham-

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ACCESSION NR: AP4047415

ber by a vortical electric field, and acts as an equivalent secondary turn of a pulse transformer. The produced plasma pinch is stabilized with a longitudinal magnetic field of a toroidal solenoid, inside which the vacuum chamber is located. The magnetic core of the pulse transformer carries the primary vortical-field winding, the demagnetization winding, and the winding for induction heating. The setup is fed from special power systems. The electromagnetic system, the power supply, and the vacuum system are described in some detail. The longitudinal field intensity reaches 40 kG. The vortical field values are 250 and 50 V per turn with pulse durations 10 and 50 milliseconds, and with programming of the waveform such as to maintain a constant current in the plasma pinch. The power supply delivers a peak power of 77,000 kW, maximum 7000 A, no-load voltage 11 kV, and stored energy 180 million Joules. The vortical field is fed from four capacitor banks rated 1000 μF at 20 kV, 11,000 μF at 10 kV, 78,000 μF at 5 kV, and 30,000 μF at 5 kV. The capacitor-bank parameters can be varied over a wide range. The vacuum in the liner does

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ACCESSION NR: AP4047415

0

not exceed 1--2 x 10^{-7} mm Hg during the interval between gas admission, with the pressure in the outside chamber being 1--2 x 10^{-6} mm Hg. Orig. art. has: 8 figures.

ASSOCIATION: None

SUBMITTED: 23Nov63 ENCL: 00

SUB CODE: NP, ME NR REF SOV: 000 OTHER: 000

Card 3/3

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E032/E514

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AUTHORS: Strel'tsov, N.S., Fedotov, G.M., Rozhdestvenskiy, B.V., Gustov, G.K., Gamulina, V.Ye., Nifontov, Yu.L., Indyukov, N.N., Bezgachev, Ye.A. and Kuryshev, V.S.

TITLE: The construction of the electromagnet for the 7 GeV proton synchrotron

PERIODICAL: Pribory i tekhnika eksperimenta, no.4, 1962, 15-19

TEXT: A description is given (including sectional drawings) of the electromagnet. The electromagnet incorporates four types of magnetic sections, namely: 1) bending sections for radial focusing (total number 42), 2) bending sections for radial defocusing (total number 53), 3) bending sections for radial defocusing, located at points of beam extraction (total number 3), and 4) quadrupole lenses with zero field on the orbit (total number 14). The magnetic circuits of all the sections are assembled from insulated steel sheets (the chemical composition of the steel is similar to Э2 (E2) steel). The hyperbolic pole faces were made on a special milling machine and have a curvature of 2780 cm in the horizontal plane. The system used to retain the

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steel sheets in position was such that the deformation of the hyperbolic face was ±(0.1-0.15)mm after two days and ±0.03 mm after two months. The design of the neutral pole faces of the bending magnets was such that their deformation and the electrodynamic stresses did not exceed 0.05 mm. The main winding consists of 48 turns connected in series and arranged in ten sections. The winding is made of rectangular copper piping which was manufactured by the Leningrad factory "Krasnyy Vyborzhets". In addition to the main winding, there are three compensating coils which are used to correct the magnetic field. Water cooling is used and the insulation is sufficient to withstand 2 kV. The extracting magnets, which are used to extract the beam into the experimental area, consist of a main coil (8 turns; copper piping) and two compensating coils (8 turns each; copper piping). Finally, the quadrupole lenses carry an 18 turn main winding and an 18 turn auxiliary winding, both in the form of copper piping. In order to facilitate the positioning of all the electromagnets, each of them carried special markers which were used to relate their position to the appropriate points on the basic geodesic grid. Special mechanisms were used to adjust the magnets. They can be adjusted by ±2 cm in the vertical plane to an accuracy of 0.001 cm and by ±8.5 cm in the radial direction to an accuracy of 0.002 cm. The former adjustment is made with the aid of special wedges and the latter by a screw-driven mechanism. The azimuthal adjustment is made by simple wedge devices and can be achieved to an accuracy of ±0.05 cm. There are 6 figures.

ASSOCIATIONS: Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury GKAE (Scientific Research Institute of Electrophysical Apparatus GKAE) and Institut teoreticheskoy i eksperimental'noy fiziki GKAE (Institute of Theoretical and Experimental Physics GKAE)

SUBMITTED: April 6, 1962

S/120/62/000/004/032/047
E140/E420

AUTHORS: Alekseyev, A.G., Veselov, M.D., Mozalevskiy, I.A., Rozhdestvenskiy, B.V., Trokhachev, G.V.

TITLE: Magnetic measurements at the factory on the electromagnet blocks of the proton synchrotron

PERIODICAL: Pribory i tekhnika eksperimenta, 7 no.4, 1962, 172-178

TEXT: To obtain more precise experimental data than were available from models and to check the production, factory measurements were carried out on the electromagnet blocks in groups of three in conditions approximating to the working cycle. Reproducibility of the wavefront and maximum current in the test set-up was about 2%. In the first measurements, two C-blocks (focusing and defocusing) and one X-block were studied for the basic characteristics of the magnetic field - the distribution of induction and gradient in azimuth, nonlinearity, decay index as a function of induction, etc. The remaining blocks were only subjected to calibration tests, which permitted the scatter in mean magnetic field characteristics to be determined and defective blocks to be rejected. The article describes the

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PROCESSES AND PROPERTIES INDEX

Physicochemical considerations on the detergent action of soap and practical questions of the soap industry. P. A. Rebinder and D. Rozhdestvenskii. — *Masloboino Zhirovoe Delo* 1934, No. 11, 44-8; *Seifensieder-Ztg.* 62, 215-17(1935). — A theory of the detergent action of soap, based on surface phenomena, is developed and applied to the detn. of necessary properties of effective detergents.

B. C. A.

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Distillation of fat acids. D. Roshdestvenskii. *Masloboino Zhirovoe Delo* 1935, 38-40.—The Lurgi app. for vacuum distn. of free fat acids is described and illustrated, with emphasis on its use for fat acids occurring in soap manuf. Julian F. Smith

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ROZHDESTVENSKIY, D. and SHEYER, A.

"The Structure of Commercial Sodium Soaps," Vsesoyuz. Nauch. Issledovatel. Inst. Zhirov. Soap Manuf. 1937, 17-21.

for abst. See. Tyutyunnikov. B. N.

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The necessity of revising the standards of washing materials. D. Rozhdestvenskii. *Maslobolno Zhirovoe Delo* 15, No. 4, 16-18(1939).—A discussion with recommendations for the improved production and standardization of toilet and laundry bar and powd. soaps in accord with the best American and English practices. Chas. Blanc

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Production of a detergent powder. D. A. Rozhdestvenskii. *Pishchevaya Prom.* 1944, No. 9, 31-35. Various formulas are described for making up detergent powders for use in washing very dirty hands. S. Gottlieb

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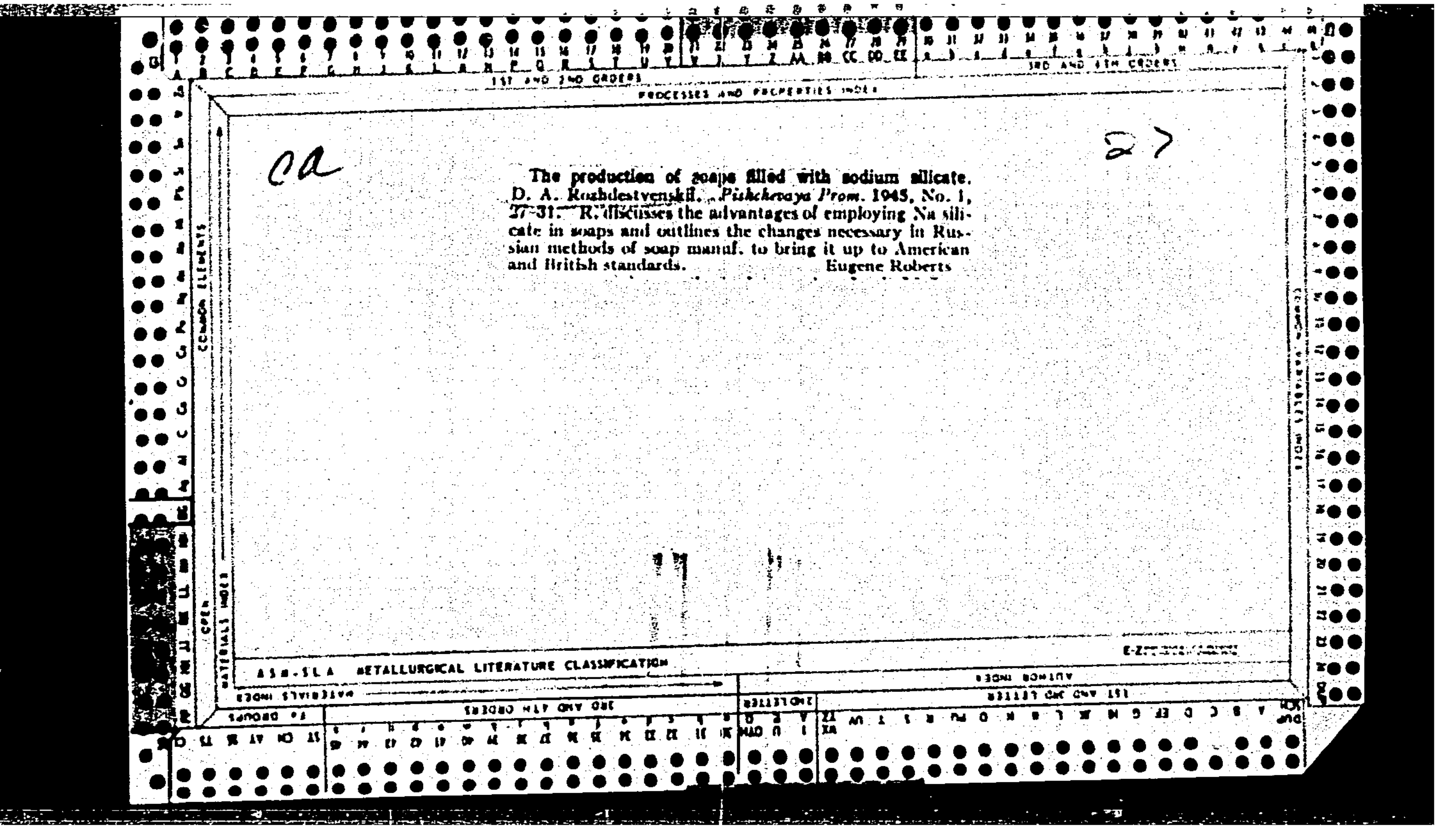
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27

The production of soaps filled with sodium silicate. D. A. Rozhdestvenskii. *Pishchevaya Prom.* 1945, No. 1, 27-31.—R. discusses the advantages of employing Na silicate in soaps and outlines the changes necessary in Russian methods of soap manuf. to bring it up to American and British standards. Eugene Roberts

ROZHDESTVENSKIY, D. A.

Some methods for increasing glycerol production when contact process for splitting of fats is used. D. A. Rozhdestvenskii. *Masloboino-Zhirovaya Prom.* 20, No. 2, 15-18 (1955).—Contact splitting of fats, technology of glycerol production, and the factors affecting it are discussed.
Vladimir N. Krukovsky

ROZHDESTVENSKIY, D. A.

CHUKOV, P.N., inzhener

Contradictions in the article by Docent D.A.Rozhdestvenskii "Ways of increasing the output of glycerin in splitting fats by the catalytic reagent method." Masl.-zhir.prom. 20 no.3:32-35 '55. (MIRA 8:7)
(Oils and fats) (Glycerol)

ROZHDESTVENSKIY, D.A., dotsent.

"Chemistry and technology of glycerin manufactrue." F.V. Nevolin. Reviewed by D.A. Rozhdestvenskii. Masl.-zhir.prom. 21 no.8:35-36 '55. (MLRA 9:3)

(Glycerol) (Nevolin, F.V.)

ROZHDESTVENSKIY, D.A., kandidat tekhnicheskikh nauk; RAZGON, L.V., inzhener;
SHCHEDRO, V.P.

Improvement of catalytic splitting of fats at the "Novyy Mylovar" Plant. Masl.zhir.prom. 17 no.1:12-15 Ja '52. (MLRA 10:9)

1. Institut narodnogo khozyaystva im. Plekhanova (for Rozhdestvennskiy).
2. Zavod "Novyy Mylovar" (for Razgon, Shchedro).
(Oils and fats)

ROZHDESTVENSKIY, D.A., kand.tekhn.nauk; RUDKINA, A.A.

Hair shampoo for washing, bleaching and dyeing. Trudy NITKHI no.1: 96-105 '62. (MIRA 17:4)

ROZHDESTVENSKIY, D.A., kand. khim. nauk

Synthetic cleaners. Izobr. i rats. no.4:19-21 '63.
(MIRA 16:7)

1. Rukovoditel' otdela Nauchno-issledovatel'skogo tekhnokhimicheskogo instituta.
(Cleaning compounds)

ROZHDESTVENSKIY, D.A.; ZALIOPO, M.N.; BORODINA, G.A.

Phase transitions in soap and their quantitative analysis. Koll. zhur. 22 no.4:458-463 Jl-Ag '60. (MIRA 13:9)

1. Institut narodnogo khozyaystva im. G.V.Plekhanova i Fabrika "Svoboda", Moskva.

(Soap)

ACC NR: AP6036991 (A,N) SOURCE CODE: UR/0181/66/008/011/3382/3383

AUTHOR: Rozhdestvenskiy, F. A.; Krylov, Ye. I.

ORG: Ural Polytechnic Institute im. S. M. Kirov, Sverdlovsk (Ural'skiy politekhnicheskiy institut)

TITLE: Infrared absorption spectra of orthotantalates of chromium and iron

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3382-3383

TOPIC TAGS: chromium compound, iron compound, tantalum compound, ir absorption, absorption spectrum, valence band, chemical bonding

ABSTRACT: The authors produced polycrystalline samples $CrTaO_4$ and $FeTaO_4$ by scinterring the initial oxides into tablets at 1320C for twenty hours. The infrared spectra were plotted with a two-beam spectrograph (IKS-14) in the interval 400 -- 2000 cm^{-1}, using ground samples annealed at 900C and mixed with dehydrated KBr(tantalate concentration 1.2%) and pressed at 6,000 kg/cm^{2}. To check the results in the NaCl region (700 — 2,000 cm^{-1}), the ir spectra were taken in addition in a suspension (matrix) of mineral oil. The ir spectra show that $CrTaO_4$ and $FeTaO_4$ have an intense absorption band near 600 cm^{-1}, the same region where a strong absorption band exists for titanium dioxide and also for calcium, strontium, barium, and lead titanate

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and sodium and potassium niobate. It is consequently possible to ascribe the absorption band to valence vibrations of the Ta-O, Cr-O, and Fe-O bonds, in analogy with the deductions for the other compounds. The authors thank N. S. Kholodov for the opportunity to use the spectrometer. Orig. art. has: 1 figure.

SUB CODE: 07,20/ SUBM DATE: 16May66/ ORIG REF: 002/ OTH REF: 001

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ROZHDESTVENSKIY, D.A., kand.tekhn.nauk; ZALIOPO, M.N., inzh.; BORODINA, G.A., inzh.

Phase changes in soap and their quantitative determination. Masl.-zhir.prom. 25 no.9:24-28 '59. (MIRA 12:12)

1. Institut narodnogo khozyaystva im. G.V.Plekhanova (for Rozhdestvenskiy). 2. Moskovskaya fabrika "Svoboda" (for Zaliopo, Borodina)

(Soap)

ROZHDESTVENSKIY, D.A., kand. tekhn.nauk.

Ionite purification of sweet water and lye glycerol (from "Journal American Oil Chemist's Society," Nos. 3,10,11, 1956). Masl.-zhir. prom. 24 no.12:38-40 '58. (MIRA 11:12)
(Glycerol) (Ion exchange)

ROZHDESTVENSKIY, D.A., kand.tekhn.nauk

Selection and activation of catalysts for the hydrolysis of fats.
Masl.-zhir.prom. 25 no.3:31-34 '59. (MIRA 12:4)

1. Institut narodnogo khozyaystva im. G.V. Plekhanova.
(Oils and fats) (Hydrolysis) (Catalysts)

ROZHDESTVENSKIY, Dmitriy Sergeyevich, akademik; LINNIK, V.P., akademik, red.; LEBEDEV, A.A., akademik, red.; TUDOROVSKIY, A.I., red.[deceased]; FRISH, S.E., red.; LUIZOV, A.V., doktor fiz.-mat. nauk, red.; RAUTIAN, G.N., doktor tekhn. nauk, red.[deceased]; PENKIN, N.P., doktor fiz-mat. nauk, red.; KIRIKOVA, G.L., red.izd-va; SOROKINA, V.A., tekhn. red.

[Selected works] Izbrannye trudy. Moskva; Izd-vo "Nauka," 1964. 348 p. (MIRA 17:4)

1. Chlen-korrespondent AN SSSR (for Tudorovskiy, Frish, Luizov, Rautian, Penkin).

BLIZNYAK, Ye.V. (Moskva); ROZHDESTVENSKIY, G.D. (Moskva)

Coordination of the scientific activities of academic institutions
concerning water supply. Izv. AN SSSR. Otd. tekh. nauk. no.12:
144-147 D '55. (MIRA 9:3)
(Water supply)

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ROZHDESTVENSKIY, E. D.

USSR/Engineering Sep 48
Construction Materials
Dams

"The Problem of Chemical Evaluation of Soil as a Construction Material for Earthworks," E. D. Rozhdestvenskiy, Engr, 1 p

"Gidrotekh Stroi" No 9

Examinations should be conducted to determine: (1) amount of soluble salts in the soil, (2) determination of amount of salts permissible for abovewater part of dam, (3) relationship of salt content of soils and salt content of water, and (4) amount of salts permissible in underwater part of dam.

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The salt-resisting properties of pozzuolanic and lime-pozzuolanic cements with Central Asiatic hydraulic additions. E. D. Rozhdestvenskii. *Sbornik Statei Stroitel. Material.* 1939, No. 1, 10-43; *Trudy Sredne-Aziat. Nauch.-Issledovatel. Inst. Irrigatsii* No. 52; *Khim. Referat. Zhur.* 1940, No. 5, 98.—To Kuvasai portland cement contg. local lime were added Kokyangaskian, Markalskian and Kizylkilskian clays, Kushkinskian tufa and andesite. The salt resistance was detd. from the mech. strength after immersion of small samples in artificially prepd. salt solns. corresponding to the av. compns. of ground waters of the Fergan Valley, in 10% Na_2SO_4 soln., in a mixt. of equal vols. of 5% Na_2SO_4 and 5% NaCl solns., and in fresh water. Pozzuolanic portland cements with addns. of clay are more stable in salt solns. than is portland cement. Increasing the amts. of Kokyangaskian and Markalskian clays increases the salt resistance. No such increase is observed with Kizylkilskian clay. Addn. to portland cement of Kushkinskian tufa and andesite increases its resistance to dil. salt solns., but not to concd. solns. Lime-pozzuolanic cements contg. clays are more stable in salt solns. than are other cements. Lime-pozzuolanic cements without addns. are affected considerably by salt solns.

W. R. Henn

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ROZHDESTVENSKAYA, E.E.

Microchemical reactions of barbital. E. R. Rozhdestvenskaya. *Farmatsiya* 1938, No. 4, 1-6; *Khim. Referat. Zhur.* 2, No. 3, 83-4(1939).—All methods of analysis are confined to the extn. with ethyl acetate. Barbital is identified by microsublimation and microscopic investigation of the sublimate. Ammoniacal soln. of $AgNO_3$ is the most sensitive and the most characteristic reagent. Its sensitivity was 0.003 mg. in a drop. Salicylic and benzoic acids give ppts. of another kind. Phenobarbital, phenacetin and caffeine give no cryst. ppts. Reactions in basic solns. with an ammoniacal soln. of $CuSO_4$ also is characteristic, but the sensitivity is 0.06 mg. in a drop. Reaction with a 3% $CuSO_4$ soln. in the presence of pyridine (Zwikker's reagent) has a sensitivity of 0.02 mg. in a drop.

W. R. Henn

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-ROZHDESTVENSKIY E. V.

EXCERPTA MEDICA Sec 10 Vol 12/5 Obstetrics May 59

824. LYMPH VESSELS OF THE ENDOMETRIUM AND THEIR CHANGES DURING THE MENSTRUAL CYCLE (Russian text) - Rozhdestvenskiy E. V.-
AKUSH. I GINEK. 1958, 5 (76-80) Illus. 4

The lymphatic system of the human endometrium has been studied on 33 slides at different stages of the menstrual cycle. The lymph vessels were studied by the method of intra-tissue injection of modified blue mass of Gerota. The investigations revealed that the lymphatic system of the endometrium is represented by networks of lymph capillaries located in superficial and deep layers of the endometrium. In the superficial layers of the endometrium the wide lymph capillaries lie between the stomas of uterine glands, forming a network of varying shape and size of loops. The superficial lymph network is connected with the capillaries of the deep network, which are situated in several layers between groups of uterine glands. With the development of the secretory phase an increase is observed of the sizes of lymph capillaries, as well as change of shape, size and orientation of loops of capillary networks, the architecture of which depends on the functional state of the glands.

(X, 5)